**Donald S. Wilde**

Mesa, Arizona, USA

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**MY GOAL**

Looking for a C++ coding and Systems-of-Systems Architect role close to real-world hardware and implementing the Internet of Things.

**PRODUCT- AND TEAM-BASED SKILL SETS**

* Over 30 Years of Embedded and Internet of Things deployment in the commercial SW/FW space
* Flexible and creative applications of open source to serve client and employer requirements
* Product development, team management and leadership, customer support, and sales team support
* Patent research, prototype construction, and patent/trademark application research and preparation
* Recruiting and managing teams of international software, test, electronics and production personnel
* Documentation and presentation skills including Images, videos, PPT and persuasive text

**SOFTWARE AND HARDWARE DEVELOPMENT SKILLS AND EXPERIENCE**

* Predictive Analytics, Machine Learning and Condition-Monitoring in C++, Java and Ruby
* Secure Boot and Kernel-level PaX and GRSEC access control implementation and configuration
* Build systems for BSD, Linux and bare metal using gcc C/make, Yocto, Wind River, Gerrit, JIRA, Git, Jenkins CI, Artifactory and Ant
* C/C++11/14/17, Java, Python and Ruby, BASH, ASM and C on bare metal, FreeRTOS and Linux
* Linux kernel and library tracing and profiling using perf, oprofile, and LTTng
* Android Java applications programming and deployment in the Net-connected mobile environment
* Android systems and multi-media programming using Java, C++ and Native Development Kit
* BSD and Linux system and kernel configuration, debugging, custom drivers, systems software
* Multi-core and multi-threaded code execution, from device-level multi-threading to SYSVSHM shared-memory subsystems controlled by MUTEXes and interleaved hardware-based process and hardware interaction mechanisms
* eCAD mixed-signal board and ASIC design using OrCAD and Tanner capture, SPICE, Quartus and Xilinx FPGA and Tanner ASIC floor-planning tools
* Debugging using bond-out in-circuit emulators, trace buffers, logic analyzers, signal generators, oscilloscopes, and software debuggers
* System and device testing using custom test boards, harnesses, probes and JTAG with custom software and device-resident code
* ATE racks of instruments, matrix signal switchers and signal generators through IEEE-488 bus
* PC GUI development in Smalltalk/V as front-end for assembler-based GPIB ATE chain
* Die test result interpretation from AdvanTest and Teradyne bed-of-nails testers
* Programming of micro-controllers and processors (8048, ‘51, x86, PIC, Z80A, PPC, ARM7, PsoC, OMAP3 and ARM Cortex M4, M7) for embedded control applications including schedulers, kernels, command language interpreters, interrupt handlers, communications protocols, inspection camera image analysis, acceleration profiles for motor control, and analog and digital sensor and driver I/O for lab equipment, communications, video streaming and electro- and pneumatic-mechanical systems, connected through Linux system hooks, i2c, SPI, RS-xxx and other interfaces
* Web programming using Perl CGI, PHP / Zend on FreeBSD and Linux Apache / MySQL servers
* Ruby on Rails web systems incorporating MySQL databases and multiple libraries

**EMPLOYMENT HISTORY**

*Nov 2017 - April 2020 Principal Engineer Star Drive Engineering, Mesa, AZ*

I have been working on Linux-based Ruby and C++ AI Projects, incorporating game theory, machine learning and graph networks. I have also supported several clients as an independent consultant.

* Architected a fifty-state shopping cart web application in Ruby on Rails for a remote client.
* Prototyping ARM-Cortex-M7 parallel sense and control system for Internet of Things in C++
* Developed C code for new functionality of roadside traffic signal control system for Eberle Design
* Architecting and creating 2enableUS.com, an interactive platform for product deployment

*Apr 2016 – Oct 2017 Technical Customer Support Volt Technical Services, Chandler, AZ*

I worked as a debugger and validator for RDK-B C firmware on Intel's Puma7-based Home Gateways at the Intel development facility in Chandler, AZ. Profiling, tracing and optimizing execution and video streaming paths through the kernel in the networking sub-system (Linux/Yocto based).

*Apr 2011 – Oct 2015 Software Engineer Intel Corporation, Chandler, AZ*

I was hired to Intel staff on the DHG ‘Technology Strategy and Path-finding Organization’ in April 2011 to continue developing embedded GUI and cloud software for the CE4100 platform. After several re-orgs, I ended up in the Internet of Things Group doing analytics on Cloud and Gateways.

* Ported Android 4 to Intel tablets and integrated them with Linux/Yocto-based cloud server code
* Created software interface between data on tablets running Windows and tablets running Android
* Created prototype for web-to-tablet Content Recommender system including RSS data and other sources to identify, download and play multimedia content on the tablet
* Predictive and condition-monitoring analytics using the Java Web Stack including client-side JavaScript and HTML5
* Integrated MATLAB models and the MATLAB runtime into cloud Java for Banjo Canyon Project.
* Release Engineer for successful deployment of the Banjo Canyon Energy Trend Analytics Software (E\*TAS) to customers
* Device integration across smart-phones, tablets, PCs and Cloud through HTML5, jQuery, JSON
* Android tablet services programming using Java and C++ native code through Binder and NDK to access Google cloud services.
* Amazon Web Services Server Programming using Ruby, Feedzira, and Sinatra for Web Content
* Tablet and SmartTV programming for the Compute Continuum using C++ and OpenCV in Enterprise Architect IDE. Used UNIX-level shared memory and interrupt resources to provide fine-grained task control
* Jenkins CI with Perforce Klocworks static analysis tools for code functionality and security checks

*Sep 2010 – Mar 2011 Software Engineer Volt Technical Resources, Hillsboro, OR*

I was on-site at Intel Hillsboro, benchmarking and testing optimized libraries for Intel's CE4100 Media Processor for set-top boxes and digital TVs

* Compiling complete embedded Linux SDK in many different configurations including testing optimized C & C++ libraries
* Modifying Linux kernel configuration and adding hooks and loadable kernel modules for data collection and profiling
* Analyzing and highlighting successful performance improvements for Engineering and Marketing and Customer Support
* Diagnosing build and code failures and hardware/software interactions on bare-board targets
* Testing in C on on embedded hardware with multiple simultaneous video and graphics input streams and HDMI output. Used OS-level resources to spawn and communicate between multiple tasks, both streamed and coded
* Built complete wxWidgets+Ruby GUI for benchmarking SmartTV boards from a Linux host
* Custom Ruby scripting and makefiles for build customization and configuration management
* Predictive and condition-monitoring analytics software using the Java Web Stack with client-side JavaScript and HTML5

*2009 – 2010 Founder Engineering Job Future Kyle, TX*

With EJF I created the CONVINCE Project, an interactive multimedia smart-phone platform designed to provide educational and market research content delivery and information gathering for the mobile market. I also did several contract programming jobs on a piecework basis.

* Android programming of complex, multi-activity interactive multimedia application including cloud server resident data collection
* Android multi-media capture and playback under timed program control, released as FOSS to SourceForge as Vdroid15
* Board bring-up on TI OMAP3 ARM including Linux kernel, UBI filesystem, wireless and board drivers, U-Boot, and support libraries
* D-Bus control of embedded WLAN in Linux on x86 and OMAP3 targets from PHP on Zend embedded web server

*2006 – 2009 Software Engineer Senior Consultant, Staff Dell, Incorporated, Round Rock, TX*

Dell is committed to high performance in its latest blade server chassis, the M1000e, and I was a key senior staff member of the programming team doing the coding and vendor coordination for the chassis BMC and blade management controllers.

* Vendor Management of multiple outside Firmware and Localization Contractors for embedded Linux code on ARM7
* C Programming of Core System Services code for Customer-Facing Alerts (SNMP, e-mail, SMS) and Configuration Data Management on dual redundant embedded PowerPC BMC/ Chassis Management Controllers
* Linux Kernel Services porting and debug on embedded PowerPC, board boot of LCD controller

*2004 – 2006 Software Engineer, L & M Technologies, Albuquerque, NM*

L&M hired me to work on-site at Sandia National Labs for the Microelectronics Development Laboratory and MESA MicroFab.

* Developed software for a Web-based Intranet data warehouse, analysis and visual presentation system for Teradyne and AdvanTest semiconductor test data, with SECS-II/GEM integration in C and Perl for Fab Systems Metrology Data
* Helped save a million dollars a day by avoiding delay in satellite launch with rapid data analysis turnaround of testing of secret “black” die prototypes.
* Built an advanced Equation Solver in Ruby for HSPICE and Cadence SPECTRE parameters
* Created an integrated multi-platform eCAD-tool shell environment launcher and configuration management tool, written in bash shell script, now propagating through the DOE National Labs on Solaris, AIX, HPUX, BSD and Linux platforms

*2000 - 2004 Partner and Software Engineering Project Manager, Network Lynx Rio Rancho, NM*

Network Lynx is an Internet Services developer and infrastructure provider specializing in Candidate Referral Systems and Internet Newsletters for the Human Resources industry leveraging Open Source software tools and databases for maximum capability, profit, and software reuse.

* Managed development & deployment of WildHireTM vertical market SaaS Candidate Referral System package
* Took CPGjoblist.com to over a million hits per month, which is over 23,000 candidate visits
* Managed two 10-server web and hot-spare hosting co-location facilities in US and Ukraine
* Created and lead successful offshore applications programming team building client web systems

*1999 - 2004 Owner, Silver Lynx Rio Rancho, NM*

Silver Lynx was formed as an electronics design consultancy to build patent prototypes for inventors.

* Managed development and validation of integrated single-chip mixed-signal IR photonics, analog and digital ASIC bar code scanner for ultra-low-cost consumer applications using Tanner circuit design tools and MOSIS fabrication. First pass had only one logic defect!
* Developed and patented embedded PC controller using PicoBSD for wireless sensor arrays
* Created, engineered and delivered numerous other micro-controller-based circuits and systems
* Promoted FreeBSD including orchestrating three-way Press Release for Apple’s Darwin with Apple and NetBSD
* Mentored numerous young people in middle school and high schools

*1998 - 1999 Senior Firmware Engineer, Safe Zone Systems, Inc. Albuquerque, NM*

I was the application developer for a startup creating a Hand-Held Concealed Weapons Detector. I used UNICA Pattern Recognition Workshop for data profiling and neural net development for the embedded 80186 controller.

1992 - 1998 Integrator, Senior Firmware Engineer, **Soligen, Incorporated** Northridge, CA

Soligen created one of the first viable 3D Printers, the Direct Shell Production Casting systems, an innovative way of making metal casting molds directly from 3-D computer-aided design files using a licensed MIT-developed process.

* Developed hardware (circuit boards and chassis) and firmware for embedded 486 host, stepper and PID servomotor controllers, print-head buffer, and mechanical sensor and interface subsystems for CAM system, including PCI control board and FreeBSD driver
* Developed translation code on FreeBSD for various CAD formats using Perl, Tcl and Expect
* Developed and managed order transaction-processing site in Perl CGI on Apache on FreeBSD
* Managed heterogeneous network of Novell, MS NT, HP and FreeBSD servers, WS, and PCs
* Integrated and improved manufacture-ability of DSPC CAM systems
* Provided field support, usability data, and user interaction at multiple sites nationwide
* Developed and implemented Y2K Readiness and AIAG EDIF strategies

1991 - 1992 Software Engineer, **Voice Powered Technology** Canoga Park, CA

VPT developed and produced a powerful voice-activated VCR controller for consumer usage. It reached mass production under VPT and Magnavox Quasar branding.

* Captured, reverse-engineered and decoded the infrared codes used by consumer remotes
* Developed an object-oriented database written in Smalltalk/Windows to create an infrared code library that was meta-programmed into ROMmable binaries
* Suggested refinements to the FFT algorithm for speech pattern recognition

1990 - 1992 Owner, **Donald S. Wilde Consulting** Los Angeles, CA

I consulted on applications in manufacturing process control using distributed controllers and PCs as master controllers, also did general PC business integration consulting with Windows applications.

1988 - 1990 Software Engineer, **Tri-Star Electronics** Venice, CA

Tri-Star manufactures metal-plated pins and connectors for military applications, and systems designed to help their customers utilize their pin and connector products.

* Developed matrix-multiplexed parametric IEEE-488 ATE racks for ESD-safe Mil-Spec connectors
* Analyzed results of connector pin array test results with software
* Coded step-by-step GUI software written in Smalltalk V for use by uneducated users
* Developed x86 Assembler drivers for IEEE-488 GPIB instrumentation bus, linked to Smalltalk
* Set up testing and data capture sequences in Smalltalk that automated testing of connector pins
* Designed and produced multiple modular controller circuit boards, analog and digital interfaces to sensors, and firmware for automated tools made by Tri-Star

1987 - 1990 Firmware Engineer, **Tri-Star Technologies** Venice, CA

Tri-Star Technologies made wire marking systems for military and aerospace applications, selling to TSE's customers.

* Linked DOS and Windows PCs and embedded 8052 systems using BASIC and Assembly code
* Printed wire with code messages and bar code
* Supported customers in the field

1986 - 1987 Firmware Engineer, **Javelin Electronics** Torrance, CA

Javelin developed and produced large scale security systems including video, alarm, and control panels.

* Responsible for digital circuit board design and x51 firmware of modular video switcher and remote keyboard units
* Architected dual-processor 80286 master controller with shared memory interface
* Supported installation of client systems with hundreds of nodes at the Pentagon, Honolulu Airport and other high-visibility locations.
* Supported legacy products using 8048 hardware and firmware
* Used Periscope Debuggers and Nohau Emulators for distributed system-interface debugging
* Used Windows-based CASE tools for software design and documentation.

1985 - 1986 Embedded Systems Engineer, **Tri-Star Electronics** Venice, CA

Tri-Star sold a complex wire harness production system to McDonnell-Douglas for Harpoon missiles

* One of two computer specialists who created all the electronics for the robotic assembly line
* Utilized multiple 8031 STD-bus controller boards on RS-485 bus for real-time operation
* Coded multiple synchronized interleaved stepper motors and pneumatics for pin crimping stations
* Interfaced FORTH-programmed OEM video inspection station to the line
* Programmed and Interfaced small 4-axis robot, tie-wrapper and tag-printer station to the line
* Linked with UNIX minicomputer C program for complete integration into the plant's data system.
* Used Intel in-circuit emulators and iPDS personal development stations to write Assembler code for the distributed 8031 controllers

1985 Sales Support Engineer, **Diacom, Incorporated** Los Angeles, CA

I was the Technical Support for a project to introduce Cellular Telephone technology to the Peoples' Republic of China. We were successful in bringing home a multi-million dollar contract for a five-cell demonstration system in the Shenzhen Economic Zone using Motorola technology.

1983 - 1985 Design Engineer, **Video Industrial Company** Glendale, CA

* Designed, supervised installation and debug of numerous interior and exterior video security systems including microwave and differential-signal video and control links
* Specified, won bids and built numerous small video production studio installations
* Designed and supervised construction of complete video/audio production van
* Assisted Chief Eng. in winning bid for L. A. Actors' Theater studio quality audio systems

**U. S. PATENT**

JAN 2003 U.S. Patent number 6,505,086 “XML Sensor System” Co-Inventor

Granted Patent for the prototype and usage of an XML DTD (Extensible Markup Language Document Type Description) to manage remote sensor APIs

**PUBLICATIONS**

*1998 – 2004 http://www.DaemonNews.org*

“Corporate BSD: The Open API Initiative” Enterprise Systems in Open Source S/W

“Das Blinkenlights” Simple hardware integration using FreeBSD

“Review Daemon: BSD Sockets From A Multi-Language Perspective” Book Review

“The Open ReSource Project: Teaching Kids to Think For Themselves”

*JUNE 1992 Embedded Systems Programming,*

"From Objects to Bits," Smalltalk as a data analyzer, interpreter and assembly-code generator.

**EDUCATION**

Education has always been central to my drive to thrive. I don’t take the easy path; I take the path that gives me the tools to get where I want to go.

* Landmark Education – The Landmark Forum and multiple Advanced Courses
* TechShop – over 80 fabrication techniques courses completed
* CEOspace -- Certified Entrepreneur Certificate, multiple national sessions attended
* Toastmasters International Competent Communicator Award
* Next Generation Economy Entrepreneurial Leadership Excelerator – Ten-month Leadership and Business Mentorship program
* Rio Rancho Chamber of Commerce Leadership Sandoval County Nine-month Leadership Training and Government Familiarization Program
* University of Arizona, Graduate School of Systems and Industrial Engineering Emphasis on Electronics and Scientific Systems Interfacing
* University of Arizona, Bachelor of Arts in Sociology, minor in Psychology – Emphasis on Mathematics and Computer Science

**SECURITY CLEARANCE**

I have been vetted and have held a Department of Energy 'L' Security Clearance

**PERSONAL INTERESTS**

Software Design, computerized electro-mechanical systems engineering, human and personal development, railroads, and the history of technology and society. Currently designing a 3-axis stepper motor-driven X-Y-Z motor system with C++ to support my model train hobby